GCSS-MC DM Plan

Data Management Plan
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Signature Page

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Change History

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v1.1d	Feb 10, 2004	25	• Changed “GCSS-MC” to “LCM Dev.” • Placed GCSS-MC as an entity over LCM Dev, SDE, FAMs/FDMs. • Added Data Process Sequence, Metadata Process Sequence, System Process Sequence figures. Editor: Dimitris A. Geragas
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		8	• Appended the List of References with the GCSS-MC ORD • Added to the List of References the GCSS FoS Combatant Commander’s 129 Requirements Cat I and II.
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1. Overview

1.1 Summary

1.1.1 Purpose

The purpose of this Data Management Plan (DMP) is to ensure that policies are in place to:

- Facilitate proper instantiation of the legacy Automated Information Systems (AIS) logistics operational data within GCSS-MC.
- Delineate and accordingly organize metadata in preparation for the GCSS-MC architecture.
- Institutionalize the Shared Data Environment (SDE) for the GCSS-MC logistics data.
- Ensure the ongoing maintenance of the SDE.

1.1.2 Scope

This Data Management Plan applies to the formulation of a proper set of policies and plans for systems within the GCSS-MC architecture. It provides the framework for the complete data, metadata, and system preparation procedures and techniques and it established the required ongoing concerns for the continuing operation of GCSS-MC.

2. References

2.1 List of References

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(e) Department of Defense Net-Centric Data Strategy, May 9, 2003
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(g) Architectural Guidelines for Business Intelligence, Data Warehouses, and Data Marts, DoD COTS Toolkit, Version 1.0
(h) U.S. Marine Corps Logistics System Realignment and Categorization/Consolidation (SRAC), 31 May 2002
(i) DoD Architecture Framework, Version 1.1, 30 August 2003
(j) USMC Shared Data Environment (SDE) Initiative, MARADMIN 187/03, 22 April 2003
(k) Charter For The Planning, Validation And Implementation Of Global Combat Support Systems-Marine Corps (GCSS-MC), 14 March 2001
(l) Operational Requirements Document, Global Combat Support Systems – Marine Corps (GCSS-MC)
(m) Global Combat Support System (GCSS) Family of Systems (FoS), Combatant Commander's 129 Requirements, Category One Requirements, Draft Data Entities and Attributes, 11 August 2003
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3. Definitions

3.1 List of Definitions

3NF	Third Normal Form
AIS	Automated Information System
BEA-Log	Business Enterprise Architecture Logistics
CES	Core Enterprise Services
CIM	Common Information Model
CIO	Chief Information Officer
COI	Communities of Interest
COTS	Commercial-of-the-Shelf
CRUD	Create, Read, Update, Delete
CSS	Combat Service Support
DDMS	Defense Discovery Metadata Standard
DMP	Data Management Plan
DoD	Department of Defense
DS	Data Store
DW	Data Warehouse
DX	Data Exchange
EAI	Enterprise Application Integration
EDI	Electronic Data Interchange
EIR	External Interface Requirements
EITS	Enterprise IT Services
ERD	Entity Relationship Diagram
ES	Enterprise Services
FAM	Functional Area Managers
FDM	Functional Data Managers
FLE	Force-Centric Logistics Enterprise
LSM	Logistics Systems Management
FoS	Family of Systems
GCSS-MC	Global Combat Support System Marine Corps
GIG	Global Information Grid
GOTS	Government Off-the-Shelf
ILC	Integrated Logistics Capability
ILDM	Integrated Logical Data Model
LCM	Logistic Chain Management
OADUSD	Office of the Assistant Deputy Under Secretary of Defense
ODS	Operational Data Store
SDE	Shared Data Environment
SRAC	System Realignment and Categorization/Consolidation
SSS	Shared Space Storage
SSS	Software System Specification

4. Background

4.1 Current Situation

There exist over 200 Automated Information Systems (AIS) in operation within the USMC comprising in-house developed software, Government Off-the-Shelf (GOTS), and Commercial Off-the-Shelf (COTS) products. Predominantly, all these legacy systems employ traditional, “stovepipe,” point-to-point data interfaces and data exchanges to perform highly-specific functions with arguably limited scope.

These systems were never designed to operate as part of an integrated network. Rather, each one was developed independently without interoperability allowances and without an overall development plan. The result is a highly complex picture encompassing multiple systems with overlapping capabilities.

This complexity of the “as-is” picture becomes clearly evident especially when considering the number of External Interface Requirements (EIR) necessary to support inter-system and integration operations. (See Figure 1)

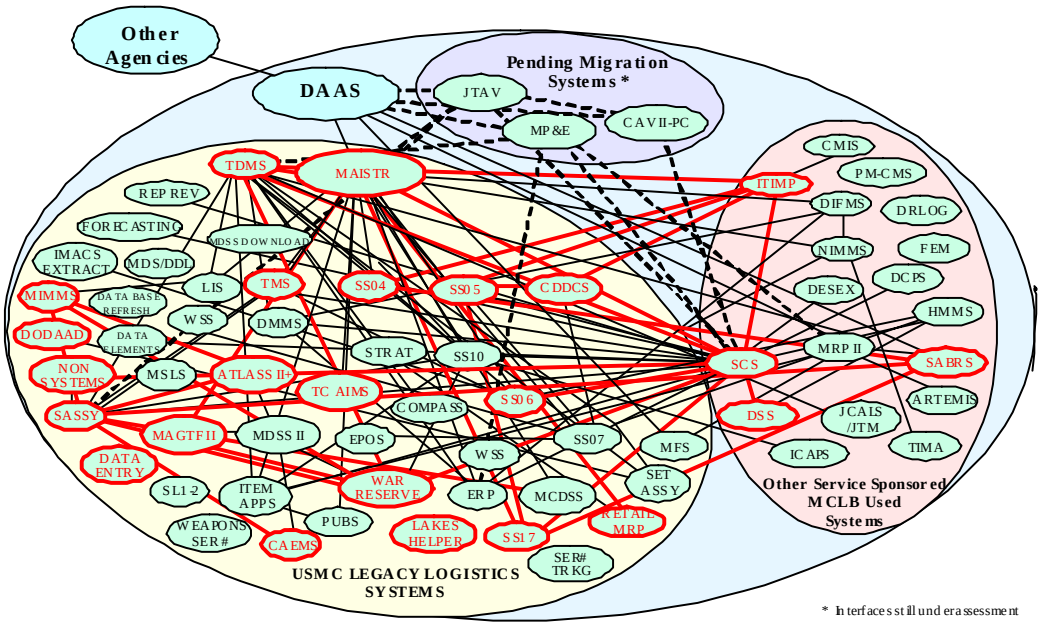

Figure 1: “As-is” Picture of the USMC Legacy Logistic Systems

In an effort to reduce the number of legacy systems, the USMC initiated the System Realignment and Categorization/Consolidation (SRAC) Program. The SRAC effort has resulted in migration and retirement strategies supporting rational information system investment recommendations.

4.2 Deficiencies

There exist three distinct problems permeating the current operation of the logistics legacy AIS:

- Developmental
- Usage
- Functional

4.2.1 Developmental

The Developmental problems relate to detrimental issues encountered in system development. They primarily stem from the fact that the existing AIS employ "stovepipe," point-to-point interfaces to achieve some form of limited integration and operation.

In particular, there are three specific problems that need to be addressed:

- **Limited Functionality**. The existing systems have limited functionality focused on satisfying the requirements of a specific combination of CSS Pillars and the GCSS-MC overarching functionality.
- **Expensive Development**. Due the lack of interoperability between the existing legacy systems, development of new systems requires independent development of both a data store and a system application. As such, there are no opportunities for data or functionality reuse and no benefit can be extracted from the existing systems.
- **Wasteful Overhead**. The legacy systems, in the current situation, require the accrual of a data and interface overhead to satisfy interoperability requirements. Should two systems need to be engaged in data exchange then it becomes necessary for an External Interface Requirement (EIR) to be established between them. The number of all possible EIR for a given number of "n" systems is:

  $$\text{Number of EIRs} = \frac{n \cdot (n-1)}{2}$$

  Therefore, the introduction of a new system that requires the establishment of data exchanges with other four systems necessitate an overhead of 10 EIRs, while 10 systems necessitate 45.

4.2.2 Usage

The Usage problems relate to detrimental issues encountered in interface usage. They primarily stem from the existence of disparate interfaces for the legacy AIS.

In particular, there are three specific problems that need to be addressed:

- **Demanding Operation**. Due to the lack of interoperability, the users of the legacy AIS need to frequently access and interrogate a number of systems in order to obtain the logistics information they require. This becomes even more critical in Logistic Chain Management (LCM) operations, where it is imperative that the full spectrum of the logistic picture is ascertained.

  Furthermore, in addition to having to collect information from many systems, the users still have to compile and intelligently combine the information in order to extract the required utility.

- **Superfluous Distraction**. The existing systems have vastly different interfaces and thus the users are required to become familiar with the particularities and methods of each one. As such, this constant need for training and education takes away from the combat service support processes and reduces the utility offered to the users of the AIS.

4.2.3 Functional

The Functional problems relate to detrimental issues encountered in application usage. They primarily stem from the fact that the data reside in disparate, limited-scope, legacy databases.

In particular, there are two specific problems that need to be addressed:

- **Lack of Data Visibility**. As the legacy AIS employ “stovepipe,” point-to-point interfaces, data tends to reside across system databases. As such, accessing a single database rarely provides all the required data. Furthermore, even diligent data mining is limited by the lack of understanding and knowledge pertaining to the contents of the AIS data stores.
- **Lack of Data Integrity**. As the legacy AIS employ disparate data stores containing common information, data tends to exist in multiple locations and systems. But as data propagates and multiplies through the EIR of the logistics systems, its quality and accuracy becomes questionable and suspect.

  Also, the existence of multiple sources for the same piece of data raises the issue of the determination of Authoritative Data Sources.

4.3 GCSS-MC Definition

As defined in its chapter, the purpose of GCSS-MC is (See Figure 2):

> "Provide information interoperability across combat service support functions and between combat support and, command and control functions in support of the Warfighter."

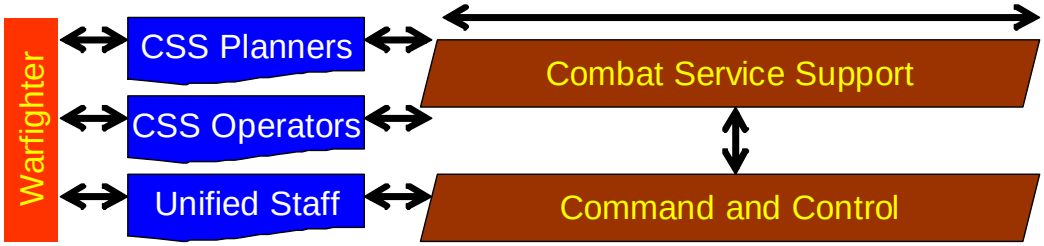

Figure 2: Graphical Depiction of GCSS-MC Purpose

4.3.1 Specification

In its instantiation, GCSS-MC will be a Family of Systems (FoS) whose constituents will be fully net-centric and whose data stores will be governed by disciplined data-centric strategy and operational policy.

The basis of GCSS-MC will be a Commercial Off-the-Shelf (COTS) product that will ultimately enable data interoperability and horizontal connectivity across the USMC logistic functions.

It is expected that through the resulting integration, GCSS-MC will provide a Logistic Picture that is fused, integrated, near real-time, and accurate. This improved functionality will, in turn, alleviate the existing deficiencies of the current implementation, and enable:

- Integrated Analysis of the Logistic Chain
- Visibility of the Data
- Control of the Logistics Pipeline

4.3.2 Methodology

In order for GCSS-MC to achieve its stated purpose, it is deemed necessary to encapsulate its Family of Systems in a Shared Data Environment (SDE) achieving three major goals:

- Legacy System Consolidation
- Data Standards that will provide the context for data
- Interface Consolidation

5. Considerations

5.1 DoD Net-Centric Data Strategy

The DoD Net-Centric Data Strategy describes a vision for a net-centric environment along with the data goals for achieving that vision. It defines approaches and actions that DoD personnel will have to take as users—whether in a role as consumers and producers of data or as system and application developers. This Strategy is scheduled to be followed by a subsequent directive and further guidance on implementation details.

The DoD Net-Centric Data Strategy establishes the foundation for managing the Department's data in a net-centric environment. The key attributes of the strategy include:

- Ensuring data are visible, available, and usable when needed and where needed to accelerate decision-making.
- "Tagging" of all data (intelligence, non-intelligence, raw, and processed) with metadata to enable discovery of data by users.
- Posting of all data to shared spaces to provide access to all users except when limited by security, policy or regulations.
- Advancing the Department from defining interoperability through point-to-point interfaces to enabling the "many-to-many" exchanges typical of a net-centric data environment.

5.1.1 Net-Centric Data Strategy Goals

To realize the vision for net-centric data, two primary objectives must be emphasized:

- Increasing the data that is available to communities.
- Ensuring that data is usable by both anticipated and unanticipated users and applications.

Table 1 describes the data goals in the context of these two objectives. These goals and the approaches discussed pertain to all legacy and new data assets, such as system files, databases, documents, official electronic records, images, audio files, web sites, and data access services in the Department, including DoD intelligence agencies and functions.

Goals to Increase Enterprise and Community Data Over Private User and System Data	
Visible	• Post Data to Shared Spaces • Associate Discovery Metadata with Data Assets • Create and maintain Catalogs • Register Metadata Related to Structure and Definition • Inventory Data Assets
Accessible	• Create Shared Spaces and Data Access Services • Associate Security-Related Metadata
Institutionalized	• Govern Data Processes with Sustained Leadership • Incorporate Data Approaches into Department Processes and Practices • Advocate, Train, and Educate in Data Practices • Adopt Metrics and Incentives
Goals to Increase Use of Enterprise and Community Data	
Understandable	• Define COI Specific Ontologies • Associate Content-Related Metadata with Assets • Associate Format-Related Metadata with Assets

	• Define COI-Specific Content-Related Metadata
Trusted	• Associate Data Pedigree and Security Metadata • Identify Authoritative Sources
Interoperable	• Register Metadata • Associate Format-Related Metadata • Identify Key Interfaces Between Systems • Comply with Net-Centric Interface Standards
Responsive	• Involve Users in COIs • Establish a Process to Enable User Feedback

Table 1: Net-Centric Strategy Data Goals

Two additional data properties are frequently considered: data quality and data accuracy. Data quality and accuracy will be improved as a consequence of the above data goals. Making data more visible and usable across the Enterprise creates an incentive to produce quality and accurate data. Additional steps for improving data quality and accuracy in a particular system, application, or business process will be necessary but are not a part of the Data Strategy.

5.2 Global Information Grid Enterprise Services (GIG ES)

Net-centricity is the realization of a networked environment, including infrastructure, systems, processes, and people, that enables a completely different approach to warfighting and business operations. The foundation for net-centricity is the Department's Global Information Grid (GIG).

The GIG is the globally interconnected, end-to-end set of information capabilities, associated processes, and personnel for collecting, processing, storing, disseminating, and managing information on demand to warfighters, defense policymakers, and support personnel. Net-centricity, by securely interconnecting people and systems independent of time or location, supports a substantially improved military situational awareness, better access to business information, and dramatically shortened decision cycles. Users are empowered to better protect assets, more effectively exploit information, more efficiently use resources, and create extended, collaborative communities to focus on the mission.

Implementation of GIG ES will be achieved via an evolutionary approach, where "increments" of capabilities will be defined and associated with target implementation dates, and underlying technical components will be allowed to evolve.

5.2.1 GIG ES Common Core Services

An initial set of common core services, referred to as Core Enterprise Services (CES), has been identified and is being defined by inter-service, inter-agency teams. Table 2 depicts the CES along with the associated Increment I basic capabilities.

CES	Basic Capabilities
Enterprise Service Management	• Integrated Management • NetOps Common Operational Picture • Supporting Tactics, Policies, and Procedures
Messaging	• Hybrid Architecture and Web-Based Messaging • Instant Messaging • Publish/Subscribe: Notifications Services (Push) and Awareness Services (Pull) • Unified Messaging • Tactical/Mobile Support
Application	• Technology • Operations • Policies and Procedures • Resources
Discovery	• Directory and Registry Services • Content Management Services • Ontology Services • Operations, Policies, and Procedures
Mediation	• Mediation Role/Capabilities Advertised to Participants • Initiation of Mediation Pilot Projects • Initial Operational Mediation Capabilities Availability • Adapters Fielded for Participating Systems • Larger Group of Participating Applications "Wired," Enhanced Service Level Management • Enhanced Fusion Capabilities, Synchronous Capabilities
Collaboration	• Evolution toward Standards-Based Services • Policy-Based Interoperability (Minimized GOTS)

	• Align and Integrate into GES
Storage	• Technology • Operations • Policies and Procedures
Information Assurance (IA) /Security	• Access Management • Cross-Classification Connectivity • Logging and Audit
User Assistance	• Section 508 Compliance • Smart Agent Pilots/Software Robotics

Table 2: Global Information Grid Core Enterprise Services and Associated Components

Even though all of these CES are highly relevant to GCSS-MC, the ones that are of critical importance to this DMP are:

- **Discovery Services.** This service provides processes for discovery of information content or services that exploit metadata descriptions of IT resources stored in directories, registries and catalogs. Its basic capabilities include:
    - Data source discovery
    - Content management
    - COI ontology management support
    - Knowledge bases
- **Mediation Services.** This set of services helps broker, translate, aggregate, fuse or integrate data. Its basic capabilities include:
    - Conversion, fusion of content
    - B2B support
    - Enterprise Application Integration (EAI)

5.3 BEA-Log Data Strategy

In an effort to improve support of the Warfighter in future combat situations and to provide an environment for meeting Warfighter operational requirements, the Deputy Under Secretary of Defense (Logistics & Materiel Readiness) is directing implementation of a Force-Centric Logistics Enterprise (FLE). The primary objective of the FLE is to ensure consistent, reliable support that meets Warfighter requirements through enterprise integration and end-to-end customer service.

As the Logistics Community has embarked on a number of efforts associated with realizing the Future Logistics Enterprise (FLE) vision, it has become clear that a cohesive, comprehensive, flexible data strategy with features tailored to the Logistics Domain is needed to ensure success.

The BEA-Log Data Strategy supports the realizations of the Future Logistics Enterprise (FLE), working directly with DoD Services and Agencies while they modernize their logistics systems. It focuses on specific functional requirements, proving them, and then proliferating them to achieve speedy and cost effective modernization.

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5.3.1 BEA-Log Goals

BEA-Log has established three goals, and has developed and institutionalized associated objectives and implementation strategies. (See Table 3)

Goals	Objectives	Strategies
Facilitate BEA-Log initiative Data Strategy support at the Logistics Domain Department level through collaboration with Department Services/Agencies		
	Establish a new data support strategy for the Logistics Domain	
		• OADUSD (LSM) creates a Logistics Data Strategy Working Group (DSWG), with participation by all appropriate services and agencies • The DSWG drafts, coordinates and recommends BEA-Log data initiatives for the LSM
	Administer a support data strategy that results in systems operating cost reductions and other program benefits	
		• Establish a representative governance/management body • Implement an initiative process mechanism • Establish data discovery through data views and a Metadata Registry • Define and utilize Authoritative Data Sources • Manage BEA-LOG initiative data assets and comply with ASD(NII)/CIO mandates • Capture operating cost reductions and associated benefits
	Review and recommend DoD data management policy based upon new data support experience	
		• Define cross-community of interest policy initiatives • Establish Data Strategy documentation as required to support policy oversight and administration of data assets

• Manage and administer data strategy implementation for the logistics domain
Facilitate COI collaboration to achieve joint Warfighter objectives
Weapons systems readiness (operational availability)
• Define cross community of interest data threads in support of Operational Availability, and define linkage to Operational Availability for COI initiatives
Force closure (mission readiness)
• Define cross community of interest data threads in support of force closure, and define linkage to force closure for COI initiatives
Sustainment (unit profile and force readiness)
• Define cross community of interest data threads in support of force readiness, and define linkage to force readiness for COI initiatives
Facilitate FLE collaborative initiatives
Achieve Enterprise Integration
• Provide timely, actionable information to the Warfighter though the use of Enterprise Services (e.g. Integrated Data Environment) • Provide Balanced Scorecards, Combatant Commander Reporting, linked across communities of interests, objectively quantifying logistics performance and linked to Warfighter objectives • Provide ad-hoc, intuitive query and reporting systems for the Warfighter, allowing the Warfighter to access sustainment, deployment, and retrograde information
Provide End-to-End Warfighter Support
• Implement national ownership of assets from source to point of sale • Provide low-to-no latency end-to-end supply chain visibility, including in-transit visibility • Facilitate Logistics footprint reduction • Enable Executive Agencies (EAs) to efficiently and effectively support the Warfighter • Implement Unique Identification (UID) and apply deploy Radio Frequency Identification (RFID) as an operational system integrated with transactional systems
Achieve Total Weapon System Life Cycle Systems Management
• Achieve Depot Maintenance Partnerships • Facilitate Program Manager supply chain orchestration • Realign Program Manager accounts with appropriated funds • Achieve Condition-Based Maintenance Plus. (Employ Health monitoring technology to maximize readiness, implement maintenance based on predictive methods vs. reactive methods)

Table 3: BEA-Log Initiative Data Goals

5.4 GCSS-MC Overarching Framework Context

It is imperative that this DMP establishes and institutionalizes a set of techniques, processes, and products within a flexible structure that brings cohesion to data management across GCSS-MC, while ensuring conformance with overarching DoD guidance and initiatives.

As such, any artifact of this plan, technical or programmatic, needs to account for the operational particularities and realities of the logistics domain, as represented by BEA-Log, for the overarching strategic directions of DoD, as represented by the Net-Centric Strategy, and it needs to function within the operational structure and limitations of the infrastructural framework, as represented by the GIG ES. (See Figure 3)

GCSS-MC Data Management procedures are primarily modeled after the DoD Net-Centric Data Strategy so that they are consistent and supportive of its overall goals and approaches to the extend that these are articulated. As of yet, there is no detailed data directive for the precise implementation of the Net-Centric Strategy. Therefore, it is imperative to note that care will have to be exercised to allow flexibility since such guidance will be forthcoming from the DoD CIO.

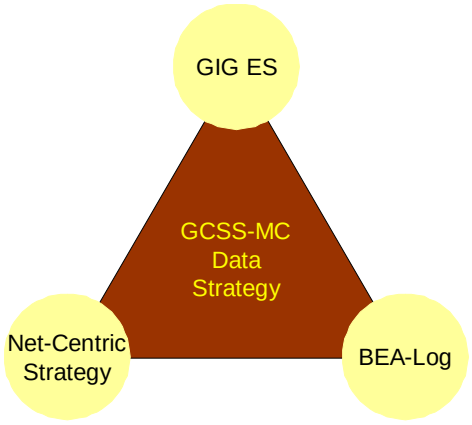

Figure 3: GCSS-MC DMP Overarching Framework Context

It is the dynamic interaction of these three factors that sets the boundaries, establishes the goals, influences the methods, and characterizes the overall framework set forth in this DMP. (See Table 4)

Net-Centric Data Strategy								
Post Data to Shared Spaces			v				v	
Associate Discovery Metadata with Data Assets			v	v	v	v		
Create and Maintain Catalogs			v					
Register Metadata Related to Structure and Definition			v	v				
Inventory Data Assets	v	v	v			v		
Create Shared Spaces and Data Access Services			v					
Associate Security-Related Metadata	v	v	v					
Govern Data Processes with Sustained Leadership								
Incorporate Data Approaches into Department								
Processes and Practices								v
Advocate, Train, and Educate in Data Practices								
Adopt Metrics and Incentives						v		
Define COI Specific Ontologies	v			v		v	v	
Associate Content-Related Metadata with Assets			v	v	v	v		
Associate Format-Related Metadata with Assets			v	v	v	v		
Define COI-Specific Content-Related Metadata			v	v		v		
Associate Data Pedigree and Security Metadata		v	v			v		
Identify Authoritative Sources		v				v		
Register Metadata			v				v	
Associate Format-Related Metadata			v	v	v	v		
Identify Key Interfaces Between Systems		v						
Comply with Net-Centric Interface Standards								v
Involve Users in COIs	v	v	v	v	v	v	v	v
Establish a Process to Enable User Feedback								

BEA-Log	Define Scope Of Data Assets	Identify Data Assets and Associated Systems	Register and Store Metadata for Data Assets	Develop Common Information Model (CIM)	Map Existing and New Data Assets to CIM	Analyze CIM and Data Asset Maps to CIM	Export CIM and Data Asset Maps to "Neutral Format"	Incorporate CIM and Data Asset Maps in Run-Time Environment
GIG ES								
Enterprise Service Management	v						v	v
Messaging								
Application						v		
Discovery			v	v	v	v	v	
Mediation				v		v	v	
Collaboration								
Storage								
Information Assurance (IA) /Security	v	v						
User Assistance								v

Table 4: Net-Centric Strategy, BEA-Log, and GIG ES Interaction

6. Architecture

6.1 GCSS-MC Architecture

In its operational form, GCSS-MC will comprise five major components (See Figure 4):

- Interface Layer
- Business Process Module
- Archive Module
- Data Marts
- Data Exchanges

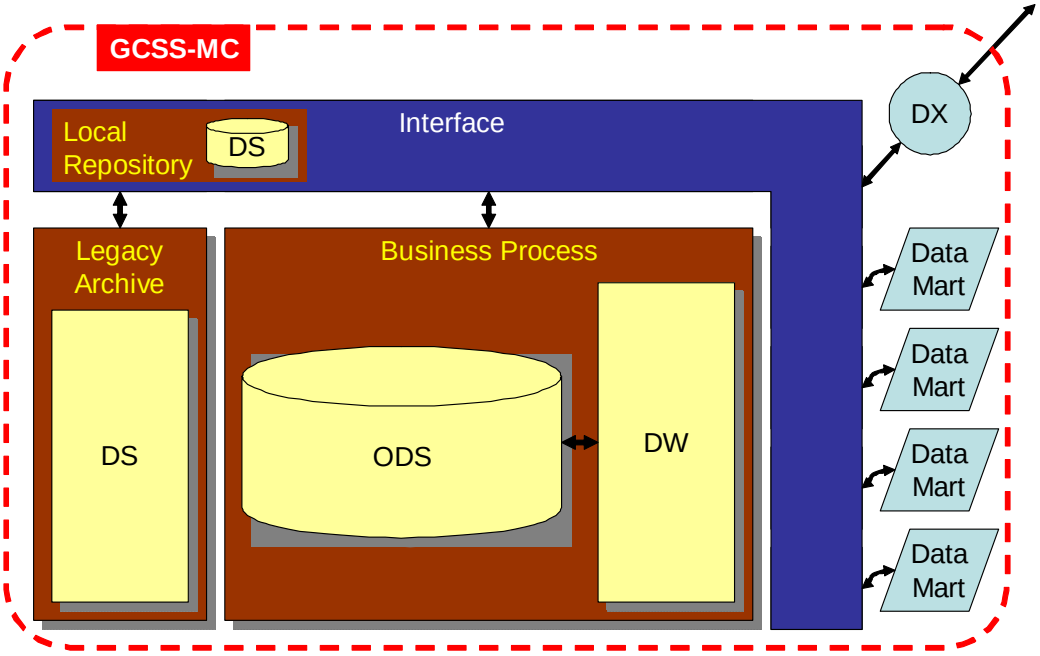

Figure 4: GCSS-MC Component Level Architecture

6.1.1 Interface Layer

The Interface Layer represents the web-accessible cocoon of the GCSS-MC Shared Data Environment. It fully encapsulates all the systems in the GCSS-MC FoS and regulates data access with the outside environment.

At the heart of the Interface Layer will reside the Local Repository, a collection of artifacts that along with the Business Process Module will instantiate the SDE. The most critical artifacts are the System Harmonization Map and the Systems ILDM.

Since the interface Layer will be the recognized point of entry to the GCSS-MC, it will enable a number of analytical and developmental services:

- Data Discovery
- Data Access
- Mediation
- Security
- Administration
- Meta-data Analysis

6.1.2 Business Process Module

The Business Process Module represents the primary data engine of the GCSS-MC and it will be build around a core COTS software application solution. It consists of three parts:

- **Business Process Engine:** The Business Process Engine comprises the transactional system of business rules that implements the functional OA. It contains and implements all the business rules required for the operation of the Operational Data Store, the Data Warehouse, and for the proper integration of the two.
- **Operational Data Store:** The Operational Data Store contains the GCSS-MC Shared Space Storage (SSS). This data store contains live, operational data pertaining to logistics systems.
- **Data Warehouse:** The Data Warehouse contains the persistent and time-phased data generated by the ongoing operation of the Operational Data Store.

6.1.3 Legacy Archive Module

The Legacy Archive Module represents a storage space allocated for the selective preservation of legacy historical, reference, and system data, as well as their associated business rules. Even though both the Business Process DW and the Archive DS will contain historical data, the time period covered by the Archive DS data will precede that of the Business Process DW data.

6.1.4 Data Marts

Data Marts are a subset the Business Process data contents used for a specific GCSS-MC business function. The established GCSS-MC data marts will have to satisfy specific demands of GCSS-MC users in terms of analysis, content, presentation, and ease of use.

6.1.5 Data Exchanges

Data Exchanges are the instantiations of specific protocol and communication requirements that satisfy specific information exchange requirements of users remote to the GCSS-MC such as other domains, Communities of Interest, and departmental data aggregations and initiatives.

7. Organization

7.1 Roles and Responsibilities

7.1.1 GCSS-MC

From a functional perspective, GCSS-MC is the physical implementation of the ILC and the capability to meet COCOM warfighter needs. The GCSS-MC team will be working closely with the ILC as re-engineers of business processes. These are expected to yield direct benefits to the Marine Corps such as reduced customer wait time and reduced inventories. Indirectly, the process will result in trading MAGTF mass and footprint, for information and speed. A critical initial step of GCSS-MC will be translating requirements from the ILC into actionable system functional requirements. Similarly, selected COCOM 129 requirements will be a Marine Corps responsibility and they will be assessed against current and planned systems and process capabilities. The effort will also include an activity to identify current Marine Corps portfolio gaps, and a Plan of Action and Milestones to meet those requirements through a variety of technical approaches. This includes the Shared Data Environment (SDE), which represents a tool for meeting decision support and data access needs whose specific requirements necessitate significant analysis and exploration.

Where appropriate the GCSS-MC team will conduct metrics-based evaluation of programs of record versus other COTS and GOTS products for fit within the overall objective and to fill gaps. Recognized off-the-shelf capabilities will be evaluated as "buy" options for trade-off analysis against the "make" option, in the case where existing systems may require extensive rework or there is a clear gap in current system capabilities.

The GCSS-MC technical and system strategy is intended to ensure those systems, applications, and related technical infrastructure that support the functional and system requirements of the ILC and DoD within the affordability and supportability criteria established by the Functional Advocates.

7.1.2 SDE

The Marine Corps Systems Command serves as the Commandant’s principal agent for equipping the Operation Forces to accomplish their warfighting mission. Their primary and mandated responsibility focuses on the development of the required data architectures to support the SDE through the development of the associated models, plans, and artifacts.

7.1.3 FAMs/FDMs

Functional Area Managers (FAMs) and Functional Data managers (FDMs) will provide the broad expertise and authority to manage the data associated with the legacy AIS and any expected new systems within the GCSS-MC. Their intimate knowledge of the particularities and requirements of their respective areas will be instrumental in determinations of Authoritative Data Sources, in validations of functional data requirements, and in ensuring data interoperability.

7.1.4 Other Organizations

There exists a variety of efforts underway that can be leveraged within the scope of this plan. This can be accomplished in two ways: either by utilizing existing products and know-how that the efforts have already developed, or through ongoing coordination with them towards new expansion efforts.

Currently identified such efforts are: MC-EITS, SCMC, and PM-LIS

			GCSS-MC												
			LCM Dev			SDE			FAMs/ FDMs			Other			
	View	Product	Initial	Persistent	Ad-Hoc	Initial	Persistent	Ad-Hoc	Initial	Persistent	Ad-Hoc	Initial	Persistent	Ad-Hoc	
Data Process Plans															
Determine System Scope	DV-1					H	H		M	M					
Identify System Interfaces	DV-2a					H	H			H					
Collect System Metadata	DV-2b	Har Map				H	H			L					
Complete Legacy Data Classification						H	H								
Migrate Legacy Data			H	H		L	L			L		H	H		MC-EITS
Implement GCSS-MC Data Discovery Tools		Tools	H									H			MC-EITS
Implement GCSS-MC Data Analysis Tools		Tools	H		H	M		M			L	H		H	MC-EITS
Metadata Process Plans															
Determine System Scope	DV-1					H	H		M	M					
Identify System Interfaces	DV-2a					H	H			H			M		SCMC
Collect System Metadata	DV-2b	Har Map				H	H			L		H	H		SCMC
Perform Configuration Management		Policy	H	H		L	M					H	H		MC-EITS
Register Metadata in DoD Repository						H	L			H					
Develop Common Information Model (CIM)	DV-2c	Har Map				H	H			L					
Complete Metadata Categorization						H	H								
Standardize Metadata	DV-3a	Har Map				H	H								
Normalize Metadata	DV-3a					H	H			M					
Harmonize Metadata	DV-3a	Har Map				H	H			M					
Catalog Metadata	DV-3a	Har Map		L		H	H								
Secure Data and Metadata		Sec Schd		H			L			H			H		MC-EITS
Register in Local Repository			H	H		L	L					H	H		MC-EITS
Map Metadata to COTS Model		Ext Har Map	H			L						H			
Identify Legacy Authoritative Data Sources	DV-3b	Har Map				H	H		H	H		H	H		SCMC
Perform Metadata Analysis	DV-3b			L	L		H	H		H	H				
Implement GCSS-MC Metadata Discovery Tools	DV-3c	Tools	H						L			H			MC-EITS
Implement GCSS-MC Metadata Analysis Tools	DV-3c	Tools	H		H	M		M	M		M	H		H	MC-EITS
System Process Plans															
Set Up Legacy Archive			H			L						H			PM-LIS
Set Up Business Process			H			L									
Set Up Data-Marts			H		H	L		L	L		H	H		H	PM-LIS
Set Up Data Exchanges			H		H	L		L	M		M	H		H	PM-LIS
Set Up Interface			H			L						H			PM-LIS
Perform Configuration Management			H	H		L						H	H		MC-EITS

Har Map: Harmonization Map	H: High Level of Involvement or Utilization
Ext Har Map: Extended Harmonization Map	M: Medium Level of Involvement or Utilization
Sec Schd: Security Schedule	L: Low Level of Involvement or Utilization
	H: Primary Responsibility

Table 5: GCSS-MC Roles and Responsibilities Matrix

Table 5 depicts all the Metadata Process Plans, the respective views in which the plans are captured, and the primary artifacts on which the plans will be implemented or

incorporated. Furthermore, the phase during which each plan is expected to be in effect is also presented:

- **Initial.** The plan will be in effect during the initial preparation and capability of GCSS-MC.
- **Persistent.** The plan will be in effect on an ongoing and regular basis.
- **Ad-Hoc.** The plan will be called into effected as required in an unplanned and sporadic fashion.

8. Process Plans

8.1 Data

8.1.1 Determine System Scope

Before a system is consider for inclusion in the GCSS-MC architecture, its scope and affinity to the functions of GCSS-MC will need to be ascertained. This will involve analysis of its interfaces, data exchanges, data store usage, and functionality decomposition.

Based on metrics developed during the initial operation of GCSS-MC, It may become imperative that a formal policy be instituted that officially prescribes the operational boundaries for system inclusion.

8.1.2 Identify System Interfaces

Interfaces among GCSS-MC systems and between GCSS-MC and external systems will be identified and recorded, and their respective functional outputs be maintained.

8.1.3 Collect System Metadata

To guarantee an accurate view and proper description of data elements, a number of basic metadata attributes have to be collected from all systems within the GCSS-MC. These specified attributes are will have to be applicable to the following main activities of the GCSS-MC architecture:

- Definition and specification of the contents of data element dictionaries.
- Design and specification of application-oriented data models, databases, and messages for data.
- Actual use of data in communications and information processing systems.
- Interchanging or referencing among various collections of data element.

8.1.4 Complete Legacy Data Classification

Since different data classifications will require different data-centric treatment before migration within the GCSS-MC, it is imperative that all data be classified with respect to their functionality within each legacy AIS.

There are five distinct and exclusive categories (See Figure 5):

- **Operational.** An updatable set of integrated operational data used for enterprise-wide tactical decision making. Contains live data, not snapshots, and has minimal history retained. It primary characteristics are:
  - **Subject-Oriented.** Data are organized around major data subjects
  - **Current-Valued.** Data represent the current content of the associated legacy systems
  - **Volatile.** Data are subject to change on a frequency that supports the definition of “current.”
- **Reference.** An updatable but semi-static set of data that consists of all valid value constrains defined for the Operational Data.
- **Historical.** A disciplined updatable set of data representing a dimensionally phased transaction of operational data. Its primary characteristics are:
  - **Dimension-Oriented.** Data are organized around archival dimensions
  - **Non-Volatile.** Data are accumulated from the ODS and recorded as successive and cumulative transactions
- **System.** A highly volatile, non-informational set of data that are used by the application to support its operation and functionality.
- **Interface.** A subset of the System category dedicated to interface functions for intersystem information exchange and staging.

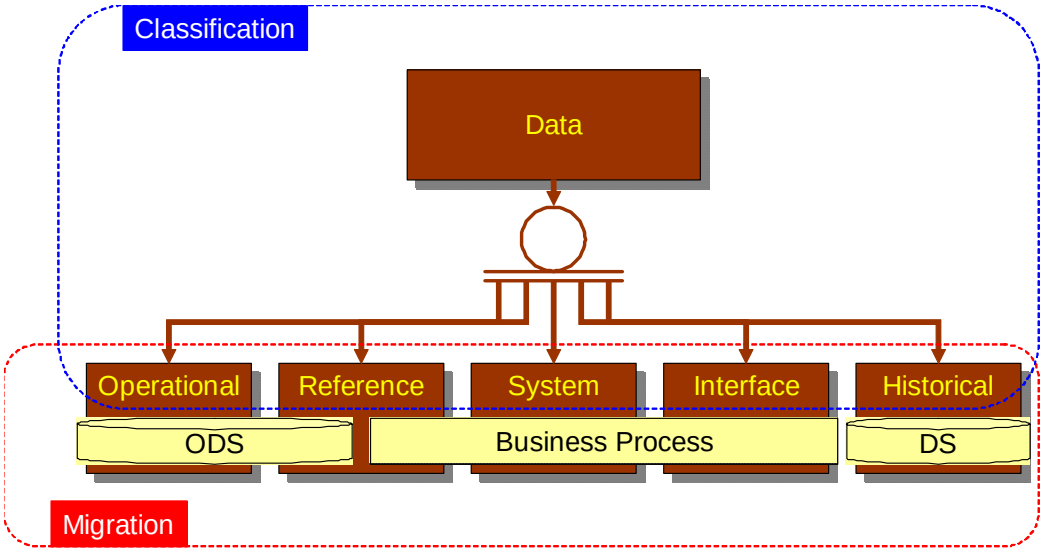

Figure 5: Data Classification Scheme

8.1.5 Migrate Legacy Data

Depending on their respective classification, the legacy data will be selectively migrated or used in different components of the GCSS-MC architecture (See Figure 5):

- Operational Data will be migrated to the Operational Data Store.
- Reference Data will be migrated to the Operational Data Store and also used in the establishment of the business rules of the Business Process Component.
- System Data will be used in the establishment of the business rules of the Business Process Component.
- Interface Data will be used in the establishment of the business rules of the Business Process Component.
- Historical Data will be migrated to the Data Store of the Archive Component.

8.1.6 Implement GCSS-MC Data Discovery Tools

To properly utilize data and to allow for GCSS-MC data interoperability it will be necessary for a suite of data discovery tools to be implemented.

These tools should, at a minimum, allow a user – expect when limited by policy, regulation, or security – to query and retrieve all data contained in the GCSS-MC architecture.

8.1.7 Implement GCSS-MC Data Analysis Tools

To provide utility to GCSS-MC developmental, data discovery, and data usage efforts, it is necessary for a suite of data analysis tools to be implemented.

These tools should, at a minimum, allow a user – expect when limited by policy, regulation, or security – to perform aggregate and statistical analysis on the contained data.

	Captured View	Production Artifact	Initial	Persistent	Ad Hoc
Determine System Scope	DV-1		v	v	
Identify System Interfaces	DV-2a		v	v	
Collect System Metadata	DV-2b	Harmonization Map	v	v	
Complete Legacy Data Classification			v	v	
Migrate Data			v	v	
Implement GCSS-MC Data Discovery Tools		Tools	v		
Implement GCSS-MC Data Analysis Tools		Tools	v		v

Table 6: Data Process Plans

Table 6 depicts all the Data Process Plans, the respective views in which the plans are captured, and the primary artifacts on which the plans will be implemented or incorporated. Furthermore, the phase during which each plan is expected to be in effect is also presented:

- **Initial.** The plan will be in effect during the initial preparation and capability of GCSS-MC.
- **Persistent.** The plan will be in effect on an ongoing and regular basis.
- **Ad-Hoc.** The plan will be called into effected as required in an unplanned and sporadic fashion.

Figure 6 depicts the most probable sequence of the Data Process Plans.

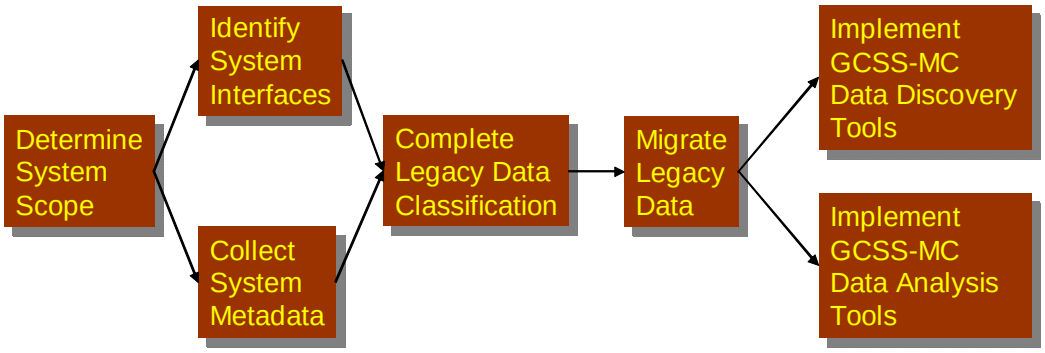

Figure 6: Data Process Sequence

8.2 Metadata

Commonly, metadata is defined as "data about data," but this is imprecise and leads to confusion. Metadata is the information and documentation which makes data understandable and shareable for users over time. Data remain useable, shareable, and understandable as long as the metadata remain accessible.

All organizations which produce data have an obligation to produce the metadata necessary to make the data understandable, both for internal and external users of the data. It is not sufficient for these users to have access to data without the information needed to understand or interpret the data.

8.2.1 Determine System Scope

Before a system is consider for inclusion in the GCSS-MC architecture, its scope and affinity to the functions of GCSS-MC will need to be ascertained. This will involve analysis of its interfaces, data exchanges, data store usage, and functionality decomposition.

Based on metrics developed during the initial operation of GCSS-MC, It may become imperative that a formal policy be instituted that officially prescribes the operational boundaries for system inclusion.

8.2.2 Identify System Interfaces

Interfaces among GCSS-MC systems and between GCSS-MC and external systems will be identified and recorded, and their respective functional outputs be maintained.

8.2.3 Collect System Metadata

To guarantee a shared view of data elements, a number of basic metadata attributes have to be collected from all systems within the GCSS-MC. These specified attributes will have to be applicable to the following main activities of the GCSS-MC architecture:

- Definition and specification of the contents of data element dictionaries
- Design and specification of application-oriented data models, databases, and messages for data
- Actual use of data in communications and information processing systems
- Interchanging or referencing among various collections of data element.

It is imperative that the basic attributes specify a data element sufficiently enough to ensure that the data element can be used in:

- Design of information systems
- Retrieval of data from databases
- Design of EDI-messages for data interchange
- Design, maintenance, and control of data element dictionaries
- Management of data

Furthermore, the collected metadata attributes have to be independent of:

- Application environment
- Function of data element
- Level of abstraction
- Grouping of data elements
- Method for designing information processing systems or data interchange messages
- Data element registry system

The suggested minimum set of the collected physical-level metadata attributes for all systems is given in Table 7.

Level	Metadata Atribute
System	Name
Table	Name
	Definition
Field	Name
	Definition
	Type
	Length
	Scale
	Domain

Table 7: Minimum Set of Physical Level Metadata

8.2.4 Perform Configuration Management

There are two triggers and one object resulting in two total aspects for the Configuration Management for the GCSS-MC metadata. (See Table 8)

Triggers	Objects
Add	System
Modify	System

Table 8: Metadata Configuration Management Aspects

Part of performing Configuration Management involves the design, development, and implementation of a highly disciplined Acceptance/Configuration Control Policy. The policy should, at a minimum, address:

- Identifying the factors that trigger and necessitate the application of Configuration Management
- Determining that a relevant change that needs to be capture has occurred
- Managing the capture of the change

The minimum set of recorder attributes for the purpose of Configuration management is provided in Table 9.

Category	Metadata Attribute
Identifying	Name
	Identifier
	Version
	Registration Authority
	Context
Definitional	Definition
Administrative	Responsible Organization
	Registration Status
	Submitting Organization
	Comments

Table 9: Minimum metadata set for Configuration Accounting

Furthermore, Configuration Management will address the need for GCSS-MC to comply with emerging standards and requirements. (i.e. DDMS)

8.2.5 Register Metadata in DoD Repository

The captured system metadata will be registered with all DoD sanctioned metadata repositories as required.

8.2.6 Develop Common Information Model (CIM)

Typical metadata collection processes do not capture the true underlying meaning of data. What is missing is the establishment of a common understanding of data that bridges nomenclature differences to understand the underlying business meaning of data in a unified manner. The idea of a common understanding of data is called semantics. This is accomplished by relating physical data schemas to "concepts" in an agree-upon Common Information Model (CIM).

The minimum set for CIM to represent the required container information is provided in Table 10.

Category	Metadata Attribute
Representational	Representation Category
	Form of Representation
	Data Type
	Maximum Size of Values
	Minimum Size of Values
	Permissible Values

Table 10: Minimum set for CIO metadata

The CIM does not reflect any specific physical schema, but rather reflects the agreed-upon business view, business vocabulary, and business rules which provide a common basis for understanding the data. The development of CIMs builds upon traditional metadata by capturing the formal meaning of data in agreed-upon business terms. In particular:

- It establishes a common semantic understanding of the meaning of data elements
- It establishes and models data element relationships with appropriate business rules

This approach differs from prior data standardization approaches that required that a common understanding be reached throughout all of DoD. CIMs developed for lower level COIs will be "analyzed and merged" to establish higher level CIMs, and also establish Core Data Elements (ie. those data elements that are shared across more than one community) at each level of the Logistics COI.

A salient tenet of the GCSS-MC is the need for the CIM to map or match all appropriate Combatant Commander's 129 Requirements data elements.

The development of the CIM for the GCSS-MC will be conducted in conjunction with and as part of the Metadata Standardization plan as an iterative process involving both statistical analysis and direct mappings.

8.2.7 Complete Metadata Categorization

Since different metadata categories will require different data-centric treatment before inclusion to the Harmonization Map and the Local Repository, it is imperative that all metadata be categorized with respect to their functionality within the Automated Information Systems.

There are five distinct and exclusive categories:

- **Operational.** An updatable set of integrated operational data used for enterprise-wide tactical decision making. Contains live data, not snapshots, and has minimal history retained. It primary characteristics are:
    - **Subject-Oriented:** Data are organized around major data subjects

    - **Current-Valued:** Data represent the current content of its legacy systems
    - **Volatile:** Data are subject to change on a frequency that supports the definition of “current.”
- **Reference.** An updatable but semi-static set of data that consists of all valid value constrains defined for the Operational Data.
- **Historical.** A disciplined updatable set of data representing a dimensionally phased transaction of operational data. Its primary characteristics are:
    - **Dimension-Oriented:** Data are organized around archival dimensions
    - **Non-Volatile:** Data are accumulated from the ODS and recorded as successive and cumulative transactions
- **System.** A highly volatile, non-informational set of data that are used by the application to supports its operation and functionality.
- **Interface.** A subset of the System category dedicated to interface functions for intersystem information exchange and staging

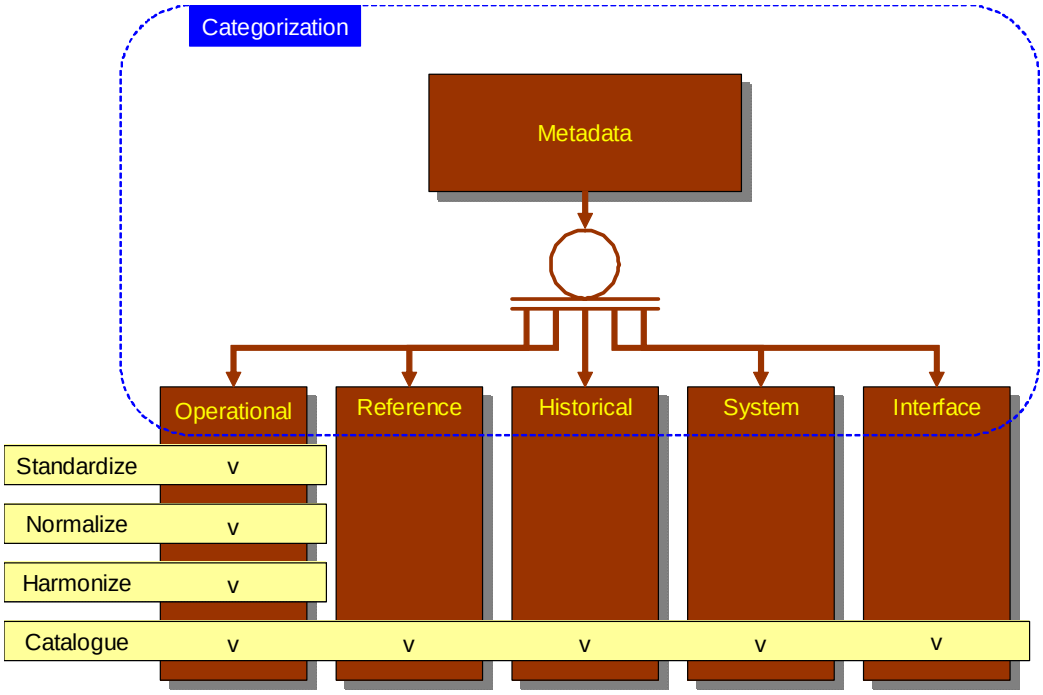

Figure 7: Metadata Categorization Scheme

The metadata describing each of the data categories will inherit the same categorization. So, metadata describing Operational Data will be categorized as Operational.

Depending on the categorization, the metadata will undergo a series of operations (See Figure 7):

- Operational Metadata will be Standardized, Normalized, Harmonized, and Cataloged.
- Reference Metadata will be Cataloged
- Historical Metadata will be Cataloged
- System Metadata will be Cataloged
- Interface Metadata will be Catalogued

8.2.8 Standardize Metadata

Standardization is the application of set rules and guidelines for the purpose of naming and identification of the collected meta-data elements. These rules narrowly define the Semantic Content and the Naming Format of the elements.

The Semantic Content concerns the meanings of element name components and possibly separators which delimit them. Under ISO/IEC 11179 there are four distinct components:

- **Object Class Term.** A component of a data element name which represents an activity or object within a specific context
- **Property Term.** A component of a data element name which is composed from a set of name components in a property taxonomy. This set must comprise terms which are both discrete and complete.
- **Representation Term.** A component of a data element name which describes the form of representation of the data element. Each term is developed from a rigidly controlled word list or a taxonomy. This term describes the form of the set values of a data element.
- **Qualifier Term.** A component of a data element name which may be attached to the object class terms, property terms, and representation terms, if necessary, in order to uniquely identity a data element.
- **Separators.** A symbol delimiting the name components of a data element name. Separators may or may not have a semantic meaning associated with them.

The Naming Format encompasses two complimentary concepts:

- **Syntactic Principles.** A concept specifying the arrangement of the components constituting a data element name.
- **Lexical Principles.** A concept concerning the use of preferred and non-preferred terms, synonyms, abbreviations, components, etc.

There exists a direct correlation between ISO/IEC 11179 and the DoD DDDS naming scheme. (See Figure 8)

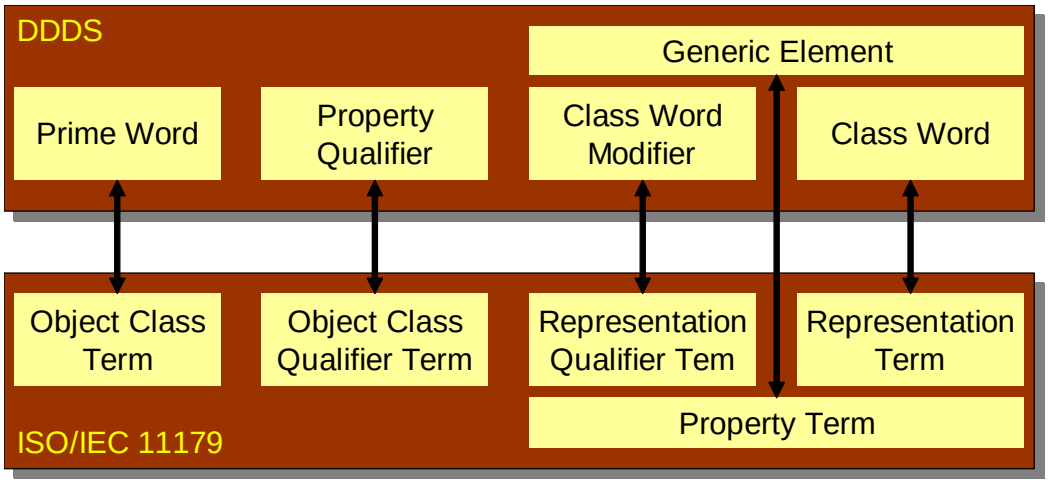

Figure 8: DDDS and ISO/IEC 11179 Component Correspondence

8.2.9 Normalize Metadata

Using a modeling methodology, such as an Entity Relationship Diagram (ERD) or object model, is a way to locate and discretely place all data elements in relation to their higher-level model entities.

8.2.10 Harmonize Metadata

Once the CIM has been established, it can be analyzed to provide maps between the CIM and physical data schema elements. (See Figure 9)

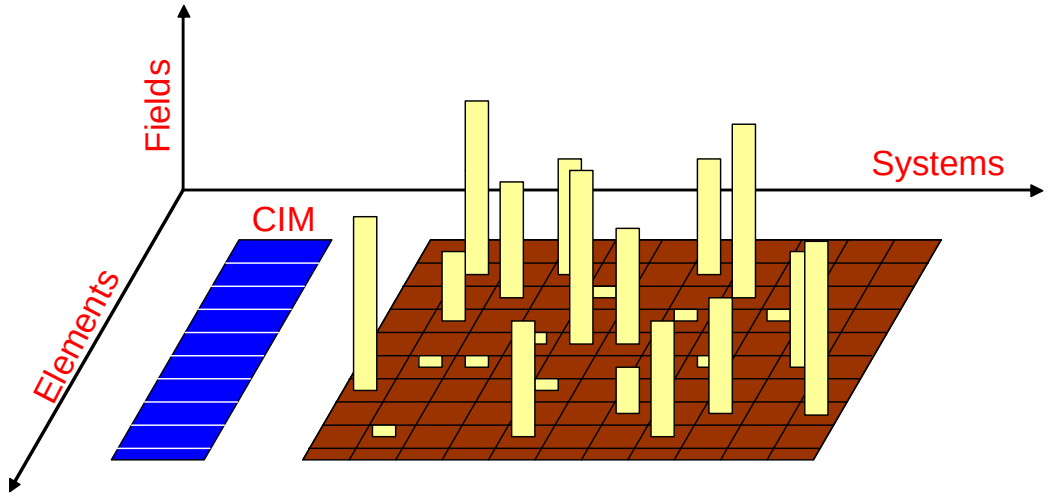

Figure 9: Notional Depiction of a Harmonization Map

The CIM and maps formally captures the meaning of the data by reference to the agreed-upon business terminology and meaning as represented by the Naming Standard to support data exchanges between all of the data assets that have been mapped.

The harmonization map artifact will comprise, at a minimum, the core structure depicted in Figure 10. More information is contained in the Harmonization Map Dictionary Supporting Document.

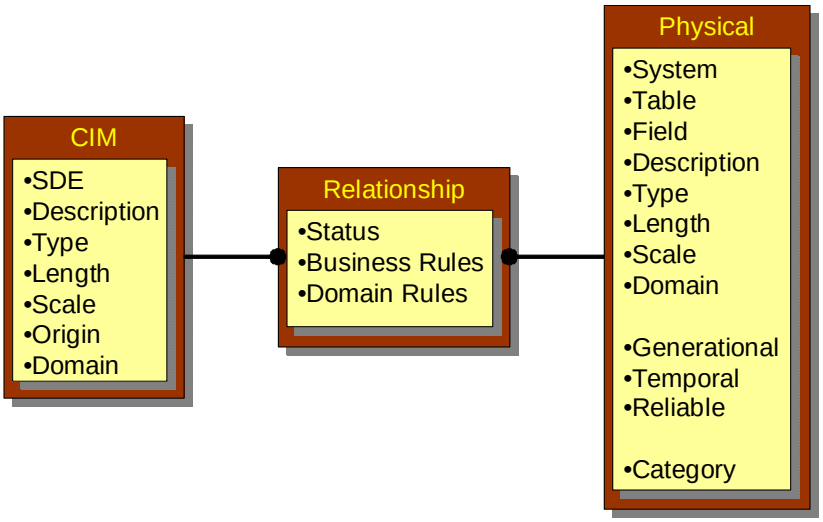

Figure 10: Core structure of the Harmonization Map

8.2.11 Catalog Metadata

All collected metadata and resulting artifacts will have to be properly cataloged in preparation for inclusion in the Local Repository. This entails the appropriate tabulation of raw data, establishing of required linkages between them, consolidation of discreet but related data sets, and migration to accessible formats.

Furthermore, during cataloging the mandatory discovery metadata elements in the DDMS will be respectively associated with the contained data assets.

8.2.12 Secure Data and Metadata

All data assets, maps, and artifacts have to be made available to any user or application except when limited by policy, regulation, or security. In order to establish a solid security practice all the data assets will have to be associated with security metadata identifying the required security constrains for access.

The resulting security metadata will constitute a data set, residing in the Local Repository, that establishes the GCSS-MC Security Schedule. Any request for metadata discovery or analysis will have to be juxtaposed against the security schedule of the corresponding metadata and thereby accepted or denied.

It is imperative that in addition to securing access to metadata, this plan also has to cover access to the described data itself.

8.2.13 Register in Local Repository

All collected metadata and resulting artifacts will be placed in the Local Repository to gain the required visibility, allow interoperability, and establish the base for the required interface services.

8.2.14 Map Metadata to COTS Model

It is highly likely that the model employed by the COTS product will be different in abstraction and architecture from the bottom-up captured systems metadata. This would necessitate for a map to be created between the COTS notional architecture and the system metadata and CIM as represented by the Harmonization Map.

This mapping will invariably result in a meta-model that need not adhere to the usual dictates of normal forms and thus it can be at a lower level than the 3NF.

8.2.15 Identify Legacy Authoritative Data Sources

As the visibility of data increases within GCSS-MC and the systems migrate away from their legacy, “point-to-point” interfaces, it will become possible to find the same piece of information in more than one system.

This multiplicity of possible sources presents the problem of determining which instance of data is the most “appropriate one” for use. There are three distinct types of Authoritative Data Sources, each suitable for a different application or use:

- **Generational.** A Generational Authoritative Data Source distinguishes the first instance of a piece of information. It is essentially the first field that records the data. It is usually associated with the Create Type in the CRUD taxonomy.
- **Temporal.** A Temporal Authoritative Data Source distinguishes the most available instance of a piece of information. It is essentially the fields in the most readily retrievable system and the most up-to-date. Systems, that are likely to contain Temporal Authoritative Data Sources, are characterized by short refresh rates, frequent data moves, and high availability. It is usually associated with the Read Type in the CRUD taxonomy.
- **Reliable.** A Reliable Authoritative Data Source distinguishes the most accurate and trustworthy instance of a piece of information. It is essentially the fields in systems that are used frequently and contain the highest quality of data. It is usually associated with the Update Type in the CRUD taxonomy.

It is important to note that it is possible for a data element to have more that one type of Authoritative Data Source and conversely it is possible for a field in a system to be of more that one type of Authoritative Data Source.

Once the Authoritative Data Sources have been identified and resolved their designations will also be included in the Harmonization Map.

8.2.16 Perform Metadata Analysis

The comprehensive and thorough picture that the Harmonization Map provides will readily allow for specific metadata analyses to be performed:

- Perform Redundancy Analysis of Data Sources
- Determine Impact of Proposed Interface Changes
- Determine the Compatibility of Existing and Planned Data Assets
- Develop Metrics to Evaluate Data Strategy

8.2.17 Implement GCSS-MC Metadata Discovery Tools

To properly utilize metadata and to allow for true interoperability it will be necessary for a suite of metadata discovery tools to be implemented.

These tools should, at a minimum, allow a user – expect when limited by policy, regulation, or security – to fully navigate the data in the Harmonization Map and the Local Repository.

8.2.18 Implement CSS-MC Metadata Analysis Tools

To provide utility to developmental efforts, it is necessary for a suite of metadata analysis tools to be implemented.

These tools should, at a minimum, allow a user – expect when limited by policy, regulation, or security – to perform aggregate and statistical analysis on the metadata in the Harmonization Map and the Local Repository.

	Captured View	Production Artifact	Initial	Persistent	Ad Hoc
Determine System Scope	DV-1		v	v	
Identify System Interfaces	DV-2a		v	v	
Collect System Metadata	DV-2b	Harmonization Map	v	v	
Perform Configuration Management		Policy	v	V	
Register Metadata in DoD Repository			v	v	
Develop Common Information Model (CIM)	DV-2c	Harmonization Map	v	v	
Complete Metadata Categorization			v		
Standardize Metadata	DV-3a	Harmonization Map	v	v	
Normalize Metadata	DV-3a	ILDM	v	v	
Harmonize Metadata	DV-3a	Harmonization Map	v	v	
Catalog Metadata	DV-3a	Harmonization Map	v	v	
Secure Data and Metadata		Security Schedule		v	

Register in Local Repository			v	v	
Map Metadata to COTS Model		Extended Harmonization Map	v		
Identify Legacy Authoritative Data Sources	DV-3b	Harmonization Map	v	v	
Perform Metadata Analysis	DV-3b			v	v
Implement GCSS-MC Metadata Discovery Tools	DV-3c	Tools	v		
Implement GCSS-MC Metadata Analysis Tools	DV-3c	Tools	v		v

Table 11: Metadata Process Plans

Table 11 depicts all the Metadata Process Plans, the respective views in which the plans are captured, and the primary artifacts on which the plans will be implemented or incorporated. Furthermore, the phase during which each plan is expected to be in effect is also presented:

- **Initial.** The plan will be in effect during the initial preparation and capability of GCSS-MC.
- **Persistent.** The plan will be in effect on an ongoing and regular basis.
- **Ad-Hoc.** The plan will be called into effected as required in an unplanned and sporadic fashion.

Figure 11 depicts the most probable sequence of the Data Process Plans.

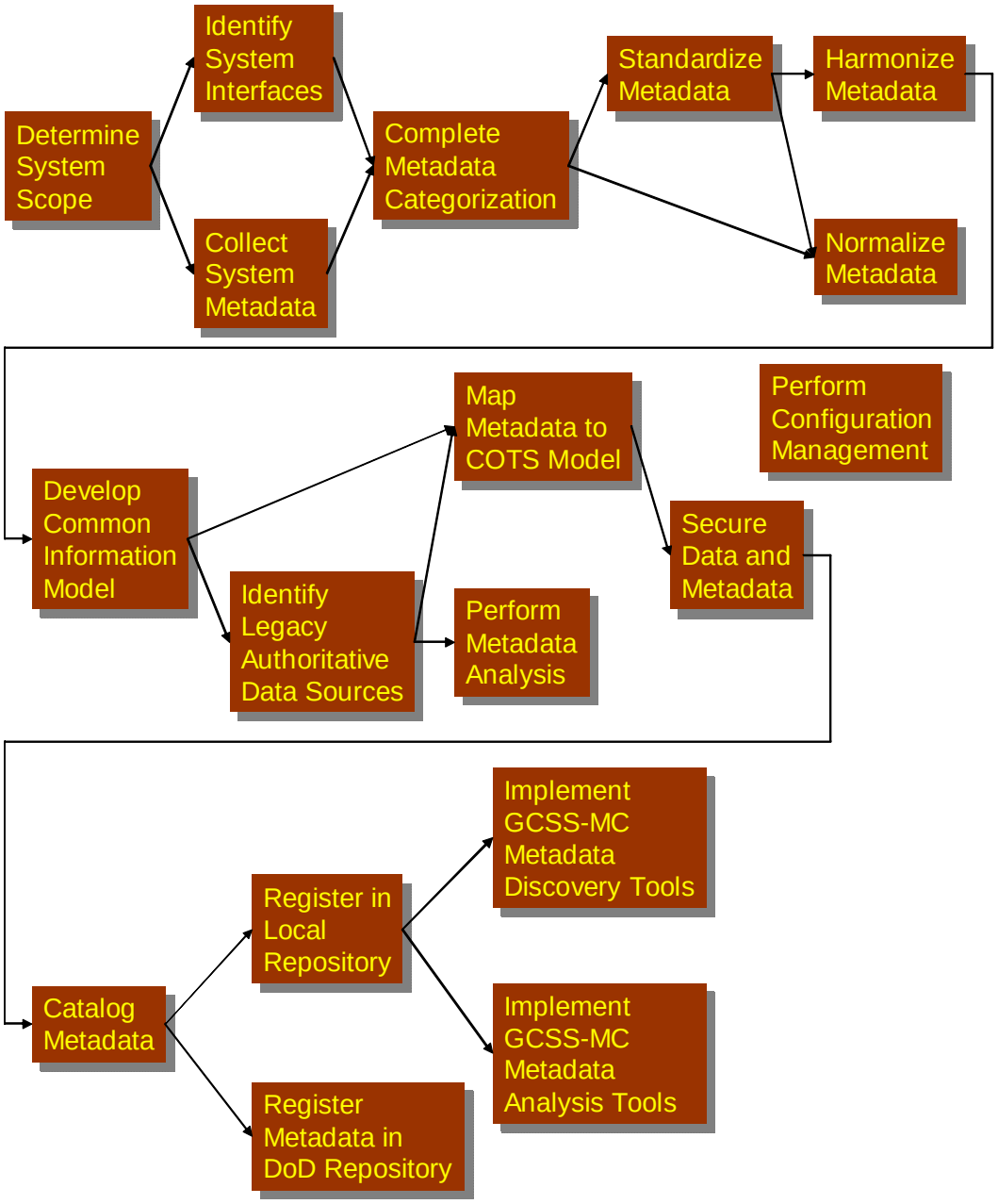

Figure 11: Metadata Process Sequence

8.3 System

8.3.1 Setup Legacy Archive

It is anticipated that some modifications will be required to the Archive component to properly accommodate the data migration and artifacts.

8.3.2 Setup Business Process

It is anticipated that some modifications will be required to the Business Process component to properly accommodate the data migration and artifacts.

8.3.3 Setup Data-Marts

In an effort to consolidate interfaces and maintain the functionality of the legacy AIS, Data Marts will have to be designed and developed that satisfy specific analysis, content, presentation, and ease of use needs.

8.3.4 Setup Data Exchanges

In an effort to increase GCSS-MC data visibility and assist in data sharing, Data Exchanges will have to be designed and developed to satisfy external information requirements.

8.3.5 Setup Interface

The interface is the most critical components of the GCSS-MC architecture as it regulates data access and integrates all the constituent components.

The interface will be designed so that it fully capitalizes on the enclosed artifacts, acts as the recognized point of entry to the GCSS-MC, and enables both analytical and developmental services:

- Data Discovery
- Data Access
- Mediation
- Security
- Administration
- Meta-data Analysis

8.3.6 Perform Configuration Management

There are two triggers and two objects resulting in four total aspects for the Configuration Management for the GCSS-MC system. (See Table 12)

Triggers	Objects
Add	Data-mart
	Data Exchange
Modify	Data-mart
	Data Exchange

Table 12: System Configuration Management Aspects

Part of performing Configuration Management involves the design, development, and implementation of a highly disciplined Acceptance/Configuration Control Policy. The policy should, at a minimum, address:

- Identifying the factors that trigger and necessitate the application of Configuration Management
- Determining that a relevant change that needs to be capture has occurred
- Managing the capture of the change

Furthermore, Configuration Management will address the need for GCSS-MC to comply with emerging data exchange standards and requirements.

	Captured View	Production Artifact	Initial	Persistent	Ad Hoc
Setup Legacy Archive			v		
Setup Business Process			v		
Setup Data-Marts			v		v
Setup Data Exchanges			v		v
Setup Interface			v		
Perform Configuration Management			v	v	

Table 13: System Process Plans

Table 13 depicts all the System Process Plans, the respective views in which the plans are captured, and the primary artifacts on which the plans will be implemented or incorporated. Furthermore, the phase during which each plan is expected to be in effect is also presented:

- **Initial.** The plan will be in effect during the initial preparation and capability of GCSS-MC.
- **Persistent.** The plan will be in effect on an ongoing and regular basis.
- **Ad-Hoc.** The plan will be called into effected as required in an unplanned and sporadic fashion.

Figure 12 depicts the most probable sequence of the Data Process Plans.

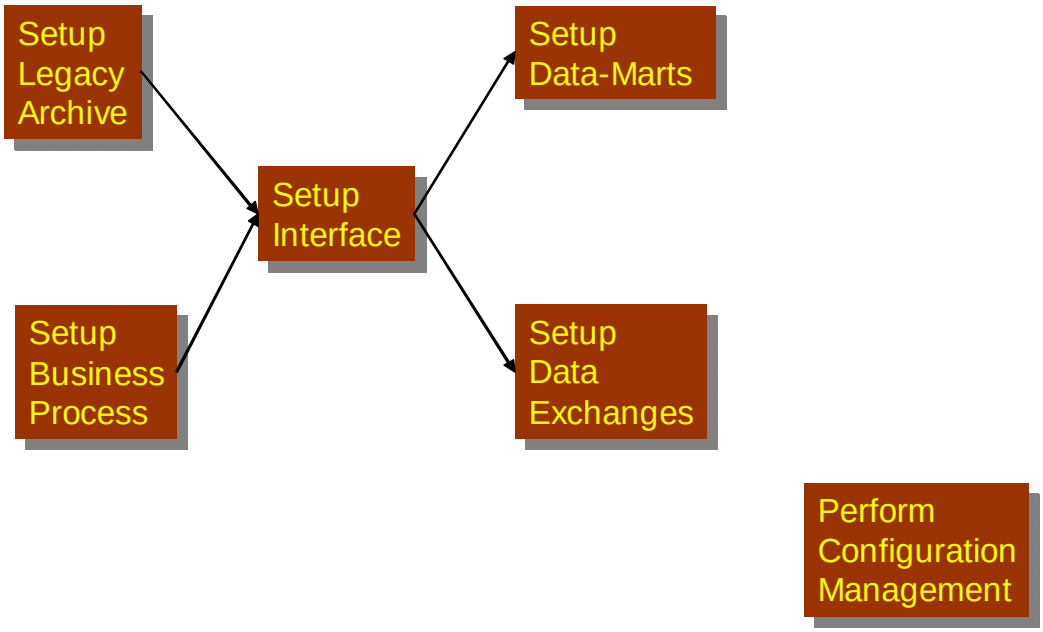

Figure 12: System Process Sequence